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William J. Boyle

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FULWIDER PATTON LLP  
HOWARD HUGHES CENTER  
6060 CENTER DRIVE, TENTH FLOOR  
LOS ANGELES, CA 90045

EXAMINER

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* WILLIAM J. BOYLE, DAVID H. BURKETT,  
ANDY E. DENISON, BENJAMIN C. HUTER, SCOTT J. HUTER,  
ARKADY KOKISH, KENT C.B. STALKER, CHICHENG WANG and  
JOHN D. WHITFIELD

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Appeal 2010-003041  
Application 10/749,046  
Technology Center 3700

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Before RICHARD M. LEBOVITZ, SCOTT R. BOALICK, and  
ERIC B. CHEN, *Administrative Patent Judges*.

CHEN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) from the final rejection of claims 94-116. Claims 1-93 have been cancelled. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

Appellants' invention relates to an embolic protection device for use in a blood vessel. (Spec. Abstract.) The embolic protection device has a filtering assembly with a self-expanding strut assembly and an attached filter element. (Spec. Abstract.)

Claim 94 is exemplary (with disputed limitations in italics):

94. A filter element for capturing embolic debris released into the bloodstream of a blood vessel of a patient, comprising:

a central region having an inlet opening and defining a storage reservoir for capturing embolic debris, the central region having a plurality of openings adapted to allow blood to flow therethrough but capture embolic debris larger than the size of the openings and contain the debris within the reservoir; and

a filter edge integral with the central region and having an inlet opening, the filter element being adapted to move from an expanded position to a collapsed position by sliding a restraining sheath initially over the filter edge and thereafter over the central region to move at least a portion of the filter element into the restraining sheath, *the filter edge having a pattern of alternating peak regions and valley regions* which prevent the filter edge from entering into the restraining sheath all at one time, wherein each valley region has a particular depth and each peak region has a particular height and at least two peak regions have different heights and the central region and filter edge are made from a filter membrane.

Claims 94-116 stand rejected under 35 U.S.C. § 103(a) as being obvious over Broome (U.S. Patent No. 6,152,946) and Gelbfish (U.S. Patent No. 5,800,457).

With respect to independent claims 94, 101, 105 and 114, we are not persuaded by Appellants' arguments (App. Br. 8-11; *see also* Reply Br. 3-6)

that the combination of Broome and Gelbfish does not teach or suggest all the features of these claims and that the Examiner improperly combined Broome and Gelbfish. In particular, Appellants argue that the combination of Broome and Gelbfish would not have rendered obvious claim 94, including the limitation “the filter edge having a pattern of alternating peak regions and valley regions.” Claims 101, 105 and 114 recite similar limitations.

The Examiner found that Broome does not teach a filter edge having a pattern of alternating peak regions and valley regions such that each peak region has a particular height and at least two peak regions have different heights. (Ans. 3.) The Examiner cited Gelbfish for the disclosure of an intravascular filter device 146 having a zig-zag element 156. (Ans. 3, 4; Gelbfish, col. 11, ll. 28-42; figs. 9, 10.) The Examiner concluded that claims 94, 101, 105 and 114 would have been obvious over the combination of Broome and Gelbfish. (Ans. 3, 4.) We agree with the Examiner.

Broome describes “[a] device adapted for deployment in a body vessel for collecting floating debris and emboli in a filter.” (Abstract.) The device 20 includes a filter 22 and a collapsible proximally-tapered frame 24 (col. 3, ll. 52-53) that operates between a closed collapsible profile (col. 3, ll. 47-48; fig. 2) and an open radially-expanded deployed profile (col. 3, ll. 49-50; fig. 1). A proximal end of the filter 22 is secured to a mouth 28 of the frame 24 via an adhesive (col. 4, ll. 41-42) in which the mouth 28 is formed of a pleated ring 34 (col. 4, l. 12).

Gelbfish describes an intravascular filter for a “minimally invasive method for collecting and removing vascular debris.” (Col. 1, ll. 5-6.) In one embodiment, an intravascularly deployable filter device 146 includes a

conical filter or collector body 148 defined by longitudinally extending prongs 150 connected to a circular edge or rim 152 of a coupling sleeve 154. (Col. 11, ll. 28-34; fig. 9.) The conical filter or collector body 148 further includes a resilient zig-zag terminal element 156 connected to the prongs 150 (col. 11, ll. 34-36) with the zig-zag terminal element 156 having a plurality of folds 158 staggered relative to one another (col. 11, ll. 36-38; fig. 10). “This staggering of folds 158 serves to effectively decrease the maximum transverse cross-sectional area of filter device 146 by longitudinally distributing the material of the filter body 146 and thereby reducing the accumulation of construction materials.” (Col. 11, ll. 42-47.)

As found by the Examiner, a person of ordinary skill in the art would have recognized that incorporating the zig-zag terminal element 156 of Gelbfish with the device 20 of Broome would reduce the accumulation of construction materials. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007). Moreover, combining Broome and Gelbfish is no more than the simple substitution of one known shape configuration (i.e., the zig-zag terminal element 156 of Gelbfish) for another known shape configuration (i.e., the pleated ring 34 of Broome) known to be useful in intravascular devices, with predictable results. *Id.* Broome also teaches that the proximal end of the filter 22 is secured to the pleated ring 34 via an adhesive. (*See* col. 4, ll. 12, 41-42.) Therefore, the “pattern” of the proximal end of the filter 22 (i.e., the claimed “filter edge”) is controlled by the modified shape of the pleated ring 34. Thus, we agree with the Examiner (Ans. 4) that modifying Broome by substituting the shape configuration of the zig-zag terminal element 156 of Gelbfish would have been obvious.

Appellants argue that “the Gelbfish patent . . . merely discloses a frame wire component 156 formed in a zig-zag pattern (Figure 10), not a filter element made from a filter membrane as recited in all of the pending claims.” (App. Br. 8.) Appellants also argue that “[t]he membrane shown in the Gelbfish patent . . . simply acts as a solid barrier to direct blood flow and embolic material into a catheter used to capture the embolic material” and thus “the Gelbfish patent actually teaches away from the use of perfusions openings in the web or film 166/ membrane 172 . . . .” (App. Br. 9.) However, as discussed previously, the Examiner cites to Broome rather than Gelbfish for the disclosure of a filter 22 formed of a polymer membrane that corresponds to the claimed “filter element.” (Ans. 3; Broome, col. 4, ll. 1-3.)

Next, Appellants argue that “[t]he web 166 and membrane 172 in the Gelbfish patent are all shown as components having a straight leading edge . . . .” (App. Br. 10.) However, the rejection of the claims 94, 101, 105 and 114 is based on the *combination* of Broome and Gelbfish and Appellants cannot show non-obviousness by attacking references individually. *See In re Keller*, 642 F.2d 413, 426 (CCPA 1981). As discussed previously, the “pattern” of the proximal end of the filter 22 is controlled by the modified shape of the pleated ring 34 of Broome.

Last, Appellants argue that “[t]he devices disclosed in the Broome patent and the Gelbfish patent are clearly distinct from one another and one skilled in the art viewing these patents would simply not consider combining them as the Examiner suggests.” (Reply Br. 4.) However, both references relate to the removal of vascular debris through the application of a filter and as discussed previously, the combination of Broome and Gelbfish is based

on the improvement of a similar device in the same way as in the prior art or the simple substitution of one known shape configuration for another, with predictable results.

Thus, we agree with the Examiner that the combination of Broome and Gelbfish renders obvious independent claims 94, 101, 105 and 114. Furthermore, the Examiner has properly combined Broome and Gelbfish to reject independent claims 94, 101, 105 and 114.

Accordingly, we sustain the rejection of independent claims 94, 101, 105 and 114 under 35 U.S.C. § 103(a). Claims 95-100, 102-104 and 106-113 depend from independent claims 94, 101 and 105 and Appellants have not presented any further arguments with respect to these claims. Therefore, we affirm the rejection of these claims under 35 U.S.C. § 103(a) for the reasons discussed with respect to independent claims 94, 101 and 105.

We are not are persuaded by Appellants' arguments (App. Br. 12; *see also* Reply Br. 6) that the combination of Broome and Gelbfish would not have rendered obvious dependent claims 115 and 116, including the limitations "wherein each strut has a proximal end and a distal end, the proximal ends of the struts being attached to a proximal collar and the distal ends being attached to a distal collar" and "wherein each peak region is attached to a strut of the frame assembly."

The Examiner found that combination of Broome and Gelbfish teaches or suggests all the features of claims 115 and 116. (Ans. 3-4, 5.) In particular, the Examiner found that the ribs 30 of Broome correspond to the claimed "struts," the collar 33 corresponds to the claimed "distal collar," and the pleated ring 34 or the mouth 28 corresponds to the claimed "proximal collar." (Ans. 4, 5; Broome, fig. 1.) The Examiner also found that "[t]here is

nothing in the claims that the filter must be attached directly to the struts.”  
(Ans. 5.) We agree with the Examiner.

Broome teaches that a mouth 28 (i.e., the claimed “proximal collar”) is coupled to a collar 33 (i.e., the claimed “distal collar”) through ribs 30 (i.e., the claimed “struts”) (col. 3, l. 60; fig. 1) and that the mouth 28 is formed from a pleated ring 34 (col. 4, l. 12). Figure 1 of Broome illustrates that the ribs 30 are connected to the pleated ring 34 at “peak regions” and Broome also teaches that a proximal end of a filter 22 is secured to a mouth 28 of the frame 24 via “adhesive or other suitable connection method” (col. 4, ll. 41-43). In other words, Broome teaches that the ribs 30 are connected or “attached” to the proximal end of the filter 22 via the mouth 28 of the frame 24.

Appellants argue that “[t]he Examiner apparently has taken the position that the filter element is indirectly attached to the struts since the collar 28 is attached to the struts” and “the Examiner’s position is not a reasonable interpretation of the Broome patent.” (App. Br. 12.) However, under the broadest reasonable interpretation, we agree with the Examiner that Broome teaches that “each peak region is *attached* to a strut of the frame assembly” (emphasis added). The Specification does not provide an express definition of “attached.” A relevant plain meaning of “attach” is “to fasten or affix; join; connect.” *Random House Dictionary of the English Language* 133 (1987). Because Broome teaches that the ribs 30 are connected or “attached” to the proximal end of the filter 22 via the mouth 28 of the frame 24, we find the Examiner’s construction of “attached” to be reasonable and not inconsistent with the Specification. Although Appellants

attempt to distinguish over Broome by arguing that claim 116 requires direct attachment, this feature is not claimed.

Therefore, we agree with the Examiner that the combination of Broome and Gelbfish renders obvious dependent claims 115 and 116.

Accordingly, we sustain the rejection of claims 115 and 116 under 35 U.S.C. § 103(a).

#### DECISION

The decision to reject claims 94-116 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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